

- 36 -

5 encoded linear matrix image over the image data channel is reconstructable into the  
6 encoded linear matrix image; and  
7 a step for encoding the binary data into the encoded linear matrix image according  
8 to the encoding parameters.

1 39. A method for recovering binary data encoded in an encoded matrix image from  
2 a received matrix image received over an image data channel, comprising:  
3 a step for analyzing a header section of the received matrix image to determine  
4 image-distortion characteristics of the image data channel;  
5 a step for decoding the header section according to the image-distortion  
6 characteristics so as to recover at least one encoding parameter, the at least one encoding  
7 parameter previously used to encode the binary data; and  
8 a step for decoding a data section of the received matrix image according to the at  
9 least one encoding parameter so as to form recovered binary data.

1 40. An apparatus for encoding binary data for transmission over an image data  
2 channel, comprising:  
3 defining means for defining encoding parameters adapted for encoding the binary  
4 data in such a manner that a transformed matrix image produced by transmitting an  
5 encoded linear matrix image is reconstructable into the encoded linear matrix image; and  
6 encoding means for encoding the binary data into the encoded linear matrix image  
7 according to the encoding parameters.

- 37 -

1           41. An apparatus for recovering binary data encoded in an encoded matrix image  
2 from a received matrix image received over an image data channel, comprising:  
3           decoder tuning means for analyzing a header section of the received matrix image  
4 to determine image-distortion characteristics of the image data channel;  
5           encoding parameter reconstructing means for decoding the header section  
6 according to the image-distortion characteristics so as to recover at least one encoding  
7 parameter, the at least one encoding parameter previously used to encode the binary data;  
8 and  
9           data-decoding means for decoding a data section of the received matrix image  
10 according to the at least one encoding parameter so as to form recovered binary data.

1           42. An apparatus for encoding binary data for transmission over an image data  
2 channel, comprising:  
3           an distortion compensator which defines encoding parameters adapted for  
4 encoding the binary data in such a manner that a transformed matrix image produced by  
5 transmitting an encoded linear matrix image is reconstructable into the encoded linear  
6 matrix image; and  
7           a linear matrix encoder communicatively coupled to the attribute definer which  
8 encodes the binary data into the encoded linear matrix image according to the encoding  
9 parameters.

- 38 -

1           43. An apparatus for recovering binary data encoded in an encoded matrix image  
2 from a received matrix image received over an image data channel, comprising:  
3           a decode tuner communicatively coupled to the image data channel which analyzes  
4 a header section of the received matrix image to determine image-distortion characteristics  
5 of the image data channel;  
6           an encoding parameter reconstructor communicatively coupled to the decoder  
7 tuner which decodes the header section according to the image-distortion characteristics  
8 so as to recover at least one encoding parameter, the at least one encoding parameter  
9 previously used to encode the binary data; and  
10          a data decoder communicatively coupled to the encoding parameter reconstructor  
11 which decodes a data section of the received matrix image according to the at least one  
12 encoding parameter so as to form recovered binary data.